

(No Model.)

W. K. SCHERMERHORN.

SPARK EXTINGUISHING AND DISCHARGING DEVICE.

No. 255,679.

Patented Mar. 28, 1882.

Fig. 1.

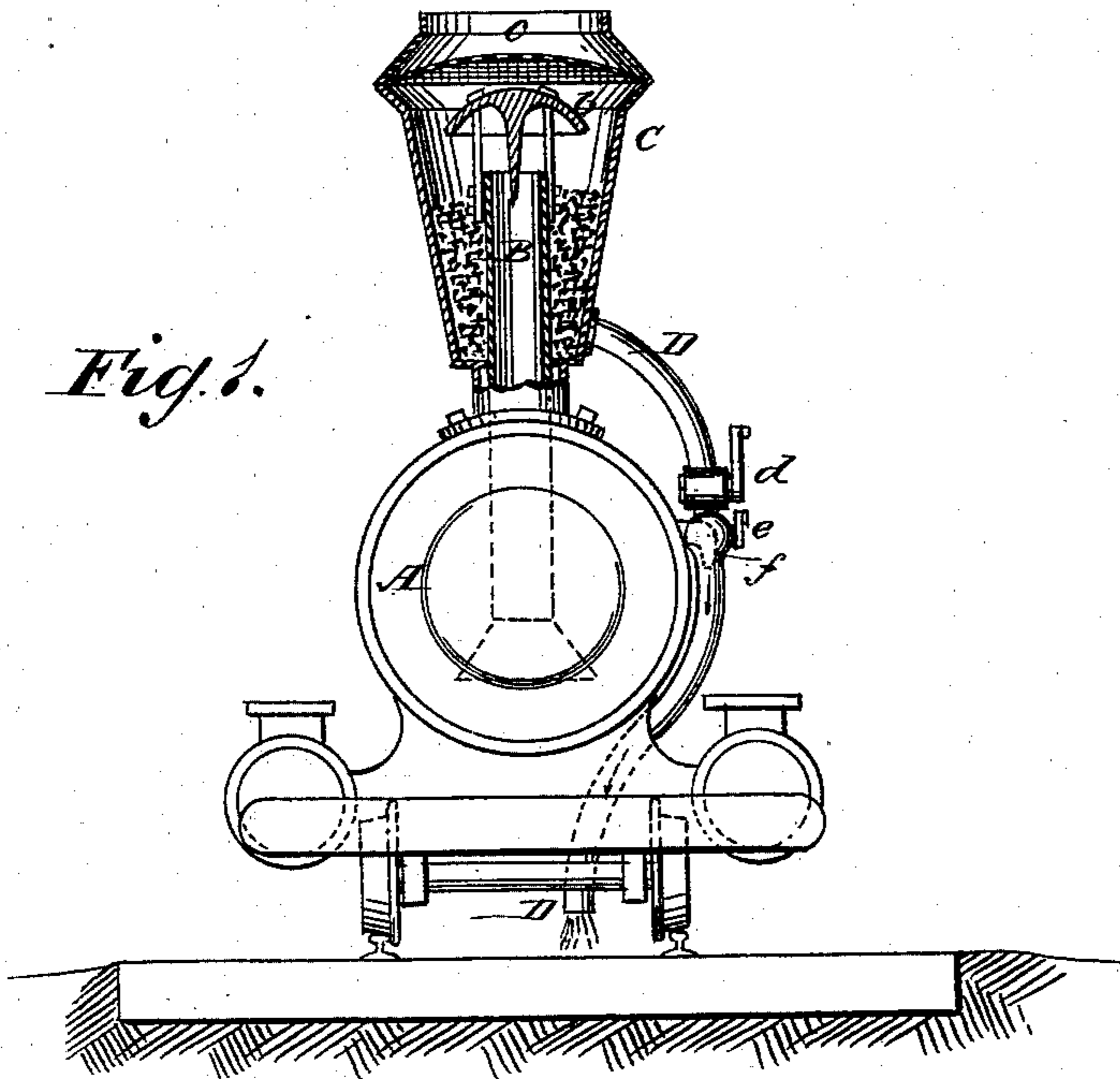
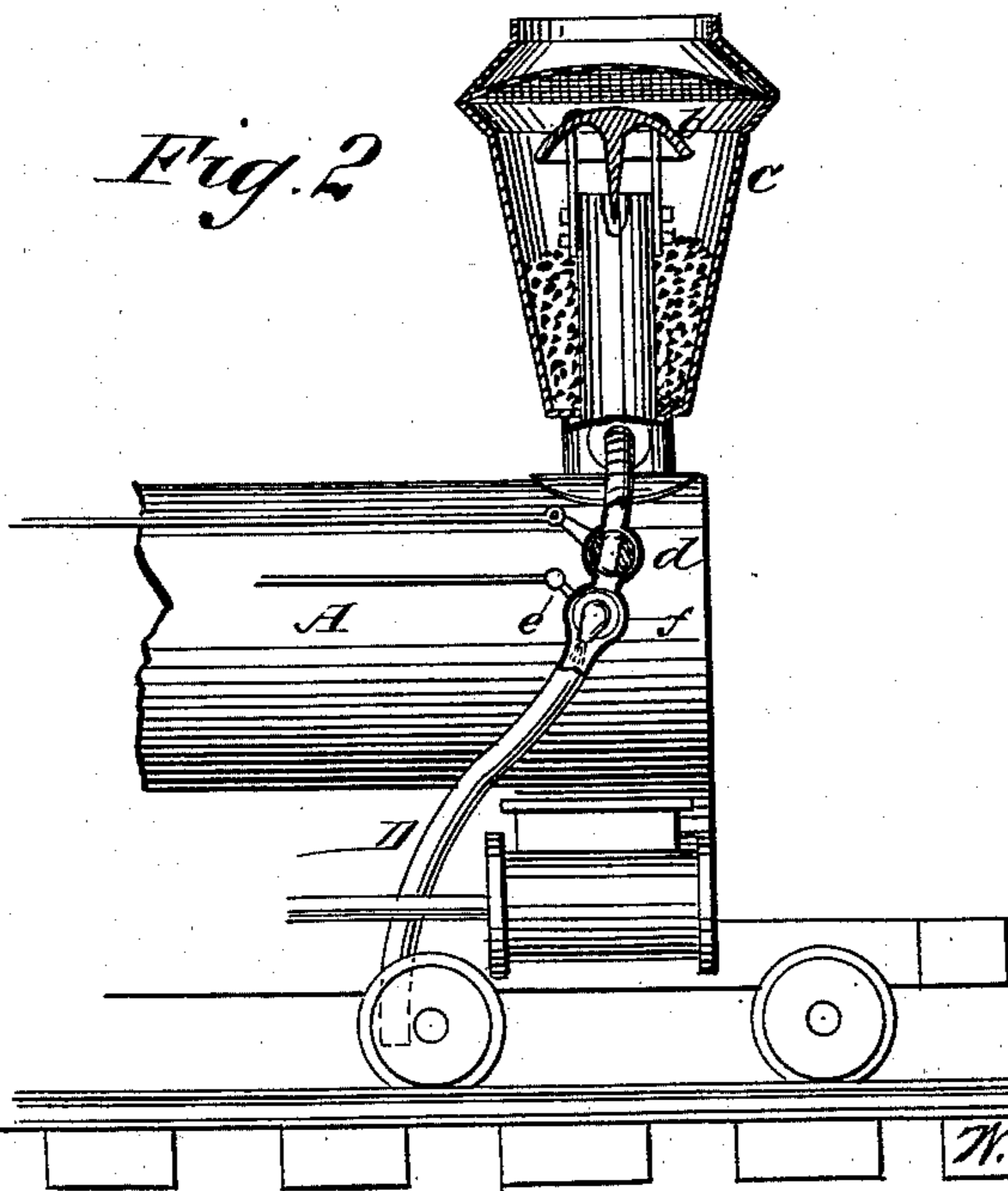


Fig. 2.



WITNESSES:

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SPARK EXTINGUISHING AND DISCHARGING DEVICE.

SPECIFICATION forming part of Letters Patent No. 255,679, dated March 28, 1882.

Application filed January 11, 1882. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM K. SCHERMERHORN, of Schenectady, in the county of Schenectady and State of New York, have invented new and useful Improvements in Spark Extinguishing and Discharging Devices for Locomotive-Engines, of which the following is a full, clear, and exact description.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in both the figures.

Figure 1 represents a partly-sectional front elevation of a locomotive-engine with my invention applied, and Fig. 2 a partly-sectional side elevation of the said engine in part with the invention attached.

The object of this invention is to produce a spark-extinguishing and discharging device for locomotive-engines which, while it insures increased freedom of draft by avoiding choking of the netting of the smoke-stack and does away with the risk of fire to barns, woods, bridges, and other combustible structures or materials along the line of the road, shall provide for the discharge in a dead and extinguished condition and at different times and places, as may be most convenient, of the cinders and other heated particles carried up by the blast into the smoke-stack, and this without annoyance to the passengers of a train.

The invention consists in a combination, with the smoke-stack, of a discharge-pipe leading from the stack down to the track or to any suitable receiver, and provided with duplicate valves, the one of which is to allow of the escape of cinders and other particles of matter deposited in the smoke-stack down said discharge-pipe, and the other of which provides for opening a jet attachment or injector connected with the boiler, to sprinkle and extinguish by steam or water taken from the boiler the heated cinders or particles escaping through the discharge-pipe, and to create a discharging current or suction within said pipe. These valves are under the control of the engineer, and the one which provides for a discharge of steam or water from the boiler is preferably the ordinary scum or surface blow-off cock, whereby when opening said valve it both acts to clean the surface of water in the boiler and to

perform its duty in connection with the spark extinguishing and discharging device, of which it forms a part.

A in the drawings indicates the boiler of a locomotive-engine; B, the draft or blast pipe, provided with the usual or any suitable spark-deflector, *b*; and C, the smoke-stack, having the usual netting, *c*.

D is the discharge-pipe for the cinders and other heated particles collecting in the smoke-stack. This pipe connects with the smoke-stack at or near its bottom and leads down to within a short distance of the surface of the track, preferably between the rails; or it may be elsewhere—as, for instance, in case of a high wind blowing cinders into the car-windows, into a receiver placed under the forward truck of the engine. Said pipe D is provided with a cinder-valve, *d*, and with a steam or water valve, *e*, controlling an injector-nozzle, *f*, which communicates with the steam and water space of the boiler and points in the discharging direction of the pipe. Both these valves *d* and *e* are under the control of the engineer.

The sparks (which term includes the cinders and other hot solid particles drawn up by the draft and deflected and deposited within the smoke-stack) may be discharged as fast as they accumulate, or be allowed to collect and be discharged at distant or short intervals, or, in fact, when and wherever it may be desired or is most convenient, by first opening the jet-pipe—that is, the valve *e* of the injector-nozzle *f*—to induce a strong draft or current within the pipe D in its discharging-direction, and then opening the cinder-valve *d*. This will cause the cinders and other particles deposited in the smoke-stack to be drawn down and through the discharge-pipe D, and to be ejected therefrom onto the ground or elsewhere, perfectly quenched by the water from the jet-pipe, and so that they will not rise, nor dust be caused to rise from them, to annoy the passengers in a train of cars. This discharge and quenching of the sparks or cinders may be effected alike when the locomotive is running as when it is at rest, and the means employed to do it in no way interfere with the regular construction of the engine or with ready access to the steam pipes, flues, or other parts.

The facility which is afforded by my inven-

tion for discharging the sparks, quenched or killed, at any time from the smoke-stack provides for an increased freedom of draft by keeping the netting of said stack clear from
5 being choked.

It is preferred to make the jet-pipe valve *e* the scum or surface blow-off cock of the boiler, so that the same operation on the part of the engineer when clearing the surface of the
10 water in the boiler induces the discharge-current in the pipe D and supplies the necessary moisture to wet the cinders or other particles being ejected therethrough. The injector
which connects the cinder-discharging pipe
15 with the boiler may accordingly here be regarded as the surface blow-off cock of the boiler.

The valve *e*, which controls the injector *f* and forms the scum-cock of the boiler, is here

shown as arranged within the spark-pipe D for
20 operation by lever and rod from the cab of the engine; but it may at times be preferred to arrange this cock or valve in the cab, and to connect the same by a pipe with the sprinkler or injector *f*.

25 Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The combination, with a smoke-stack and spark-arrester, substantially as described, of
30 the discharge-pipe provided with two valves, arranged as shown and described, whereby an injector may operate upon the solid products of combustion in the pipe, as described.

WILLIAM KELLY SCHERMERHORN.

Witnesses:

EMMETT O'NEILL,

E. WM. SCHERMERHORN.